



Doosan Infracore  
Machine Tools

# PUMA VT450 / VT750 PUMA VT900 / VT1100

High Performance Vertical Turning Center



# **New standard for unsurpassed high productivity, high speed and high precision**

The vertical turning center is designed for long term accuracy, heavy duty cutting and to minimize floor space. Its powerful spindle drives, meehanite casting and integral box guide way provide unsurpassed rigidity.

## **PUMA VT450 / VT750 PUMA VT900 / VT1100**





## Robust Bed Construction



In order to assure heavy duty machining and optimized chip flow, the machine base body is designed and streamlined. Its small foot print help you systemizing your manufacturing plan plot in your factory.



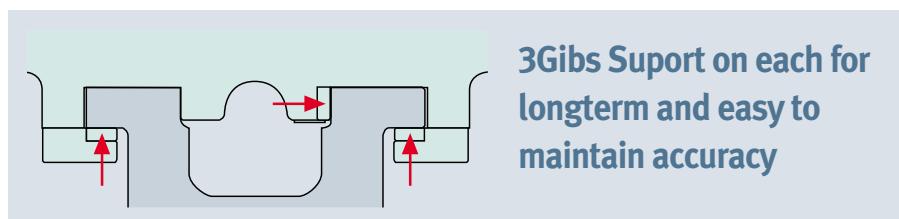
## Robust Column Construction



The wide hardened and ground box ways reduce vibration promoting better tool life and surface finishes. The box ways are turcite coated which allows for 787 ipm rapid traverse rates. The Balanced Counter Weight located inside the column, neutralizes the gravity effect on the Vertical slide. It will also conserve electricity and prevent Turret Drop while in Emergency stop or Power failure.

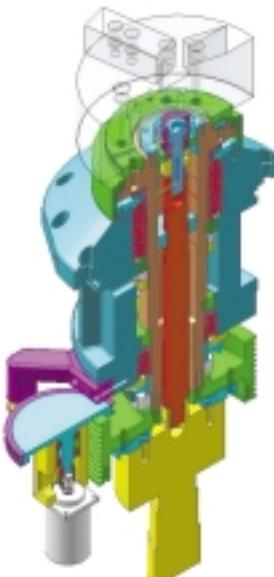
All axis Slides are Induction Hardened and Ground Hrc 55 Hardness. Long-term Accuracies are very basic requirements on Doosan Infracore products.

3 adjustable Gibs on each Axis slide are provided to maintain original accuracy.

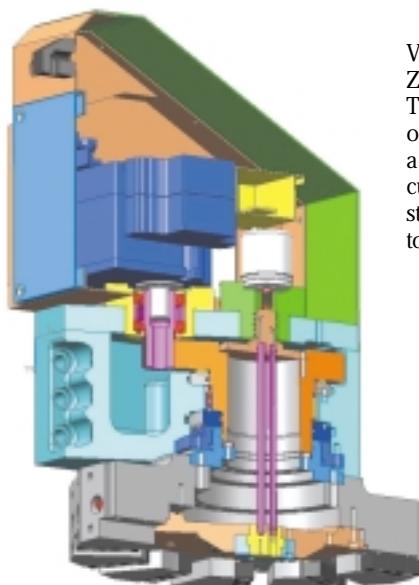


**3Gibs Support on each for longterm and easy to maintain accuracy**

## High performance Spindle & Turret



The spindle is supported by a double row of tapered roller bearings in the Top and Bottom of the spindle while angular thrust bearings provide tremendous radial load capability. The Cartridge Spindle is axial symmetric construction, which provides very stable accuracy all day-long even when the spindle is heated up by continuous operation.



V12 Turret is ground finish for Zero accuracy. Turret has large Three piece curvic couplings. of clamping force so high accuracy and heavy-duty cutting can be achieved. The 12 station turret holds ID or OD tools.

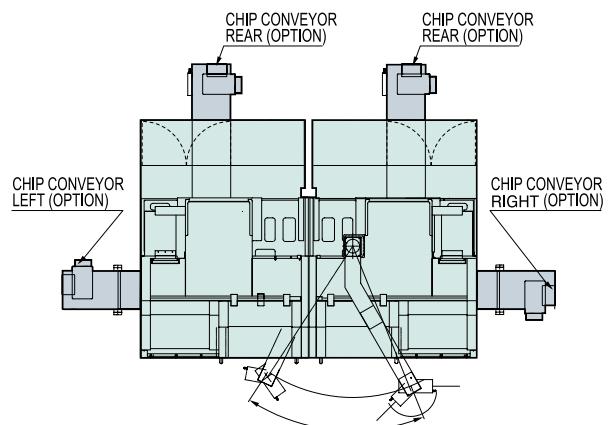
## Chip Disposal



Over head Coolant for chuck

Chip air blow

Bed wash coolant



Flexible Chip Conveyor  
Right / Left (Rear / Side)

## Safety Cover



**12 mm** Poly carbone

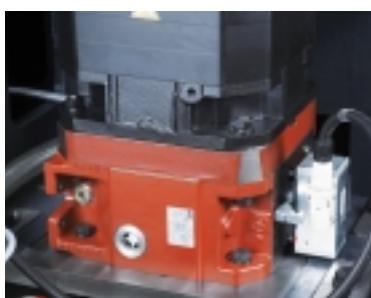
double steel cover



The swing arm on the Main Operation panel is a user-friendly feature to minimize the distance from Part to operator's Panel during set-up. Narrow Vertical panel is space saving design.

The handy Sub Operation Panel beside Door for each spindle has Cycle start, Feed hold, Emergency stop, Door Open/close switches.

## Accessories



**Gear box** (Option)  
PUMA VT900/VT1100(Standard)



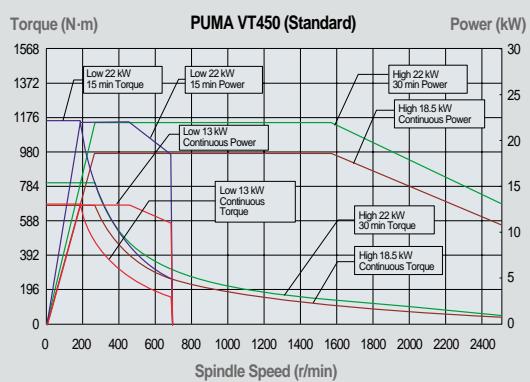
**Auto door** (Option)  
Pneumatic cylinder



**Manual tool setter** (Option)  
Removable type, Renishaw

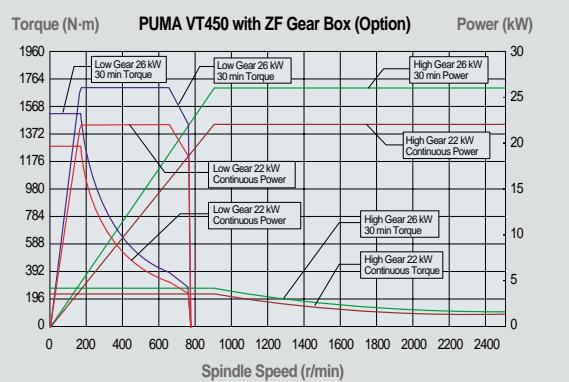


Main Spindle Power-torque diagram



**Max. spindle speed  
2500 r/min**

**Motor (15 min)  
22 kW**



### Main Specification (Std.)

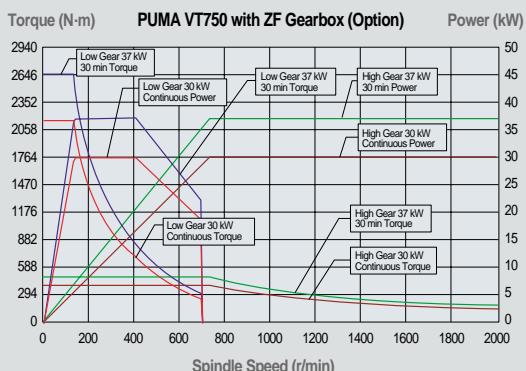
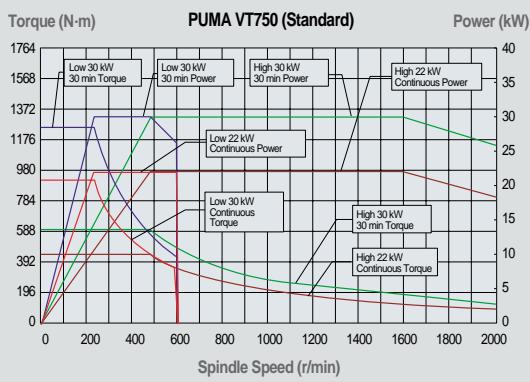
- Travels (X/Z) 240 / 450 mm
- Chuck size 305 mm
- Max. Spindle speed 2500 r/min
- Spindle motor (Cont./15min.) 18.5/22 kW
- Rapid Traverse (X/Z) 20/20 m/min
- Turret index time 1.6 s (PUMA VT450)
- No. of tool station 12 stations
- Std. M/C dimension (L x W x H) 1445 x 2491 x 3009 mm (PUMA VT450 / VT450M)
- Machine weight 6200 kg (PUMA VT450 / VT450M)

# PUMA VT750

## VT750 / VT750M / VT750-2SP / VT750M-2SP

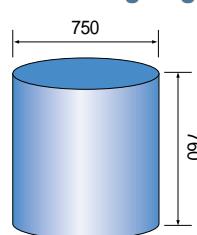


Main Spindle Power-torque diagram



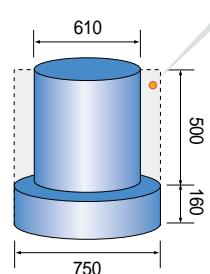
Working Range

Max. working range



unit : mm

Interference area



If working length  
160mm excess,  
interference area

Max. spindle speed

**2000 r/min**

Motor (30 min)

**30 kW**

### Main Specification (Std.)

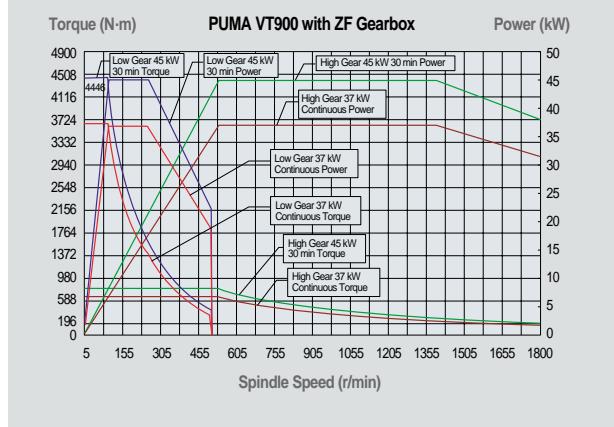
- Travels (X/Z) 385 / 760 mm
- Chuck size 381 mm
- Max. Spindle speed 2000 r/min
- Spindle motor (Cont./30min.) 22/30 kW
- Rapid Traverse (X/Z) 20/20 m/min
- Turret index time 1.8 s (PUMA VT750)
- No. of tool station 12 stations
- Std. M/C dimension (L x W x H) 1850 x 2785 x 3450 mm (PUMA VT750 / VT750M)
- Machine weight 9700 kg (PUMA VT750 / VT750M)



**Max. spindle speed  
1800 r/min**

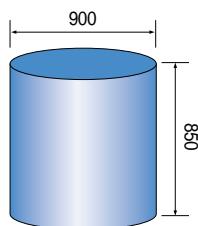
**Motor(30 min)  
45 kW**

### Main Spindle Power-torque diagram

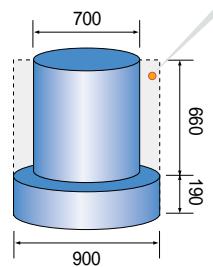


### Working Range

#### Max. working range



#### Interference area



unit : mm

### Main Specification (Std.)

- Travels (X/Z) 470 / 850 mm
- Chuck size 610 mm
- Max. Spindle speed 1800 r/min
- Spindle motor (Cont./30min.) 37/45 kW
- Rapid Traverse (X/Z) 20/20 m/min
- Turret index time 2.0 s (PUMA VT900)
- No. of tool station 12 stations
- Std. M/C dimension (L x W x H) 2130 x 3050 x 3621 mm (PUMA VT900 / VT900M)
- Machine weight 12500 kg (PUMA VT900 / VT900M)

# PUMA VT1100

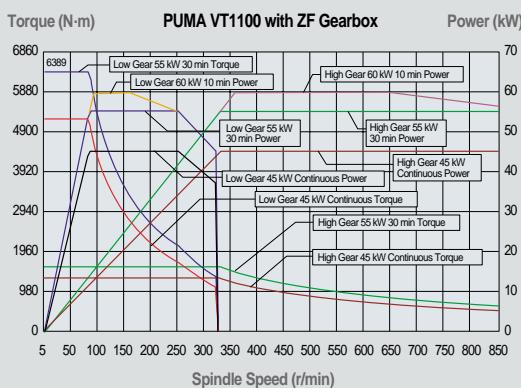
VT1100 / VT1100M



**Max. spindle speed**  
**850 r/min**

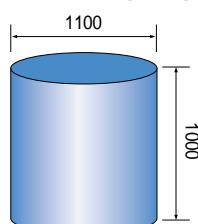
**Motor (10 min)**  
**60 kW**

## Main Spindle Power-torque diagram

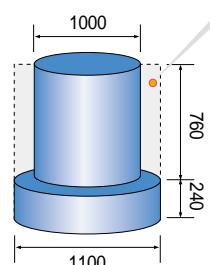


## Working Range

**Max. working range**



**Interference area**



unit : mm

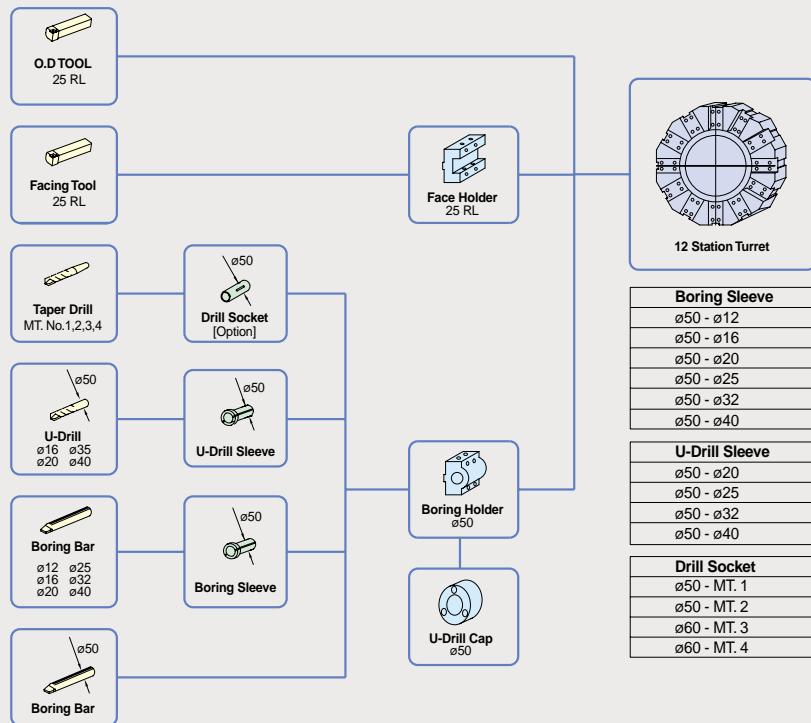
## Main Specification (Std.)

- Travels (X/Z) 580 / 1000 mm
- Chuck size 800 mm
- Max. Spindle speed 850 r/min
- Spindle motor (Cont./30min./10min.) 45/55/60 kW
- Rapid Traverse (X/Z) 20/20 m/min
- Turret index time 2.2 s
- No. of tool station 12 stations
- Std. M/C dimension (L x W x H) 2850 x 3305 x 4012 mm
- Machine weight 22000 kg

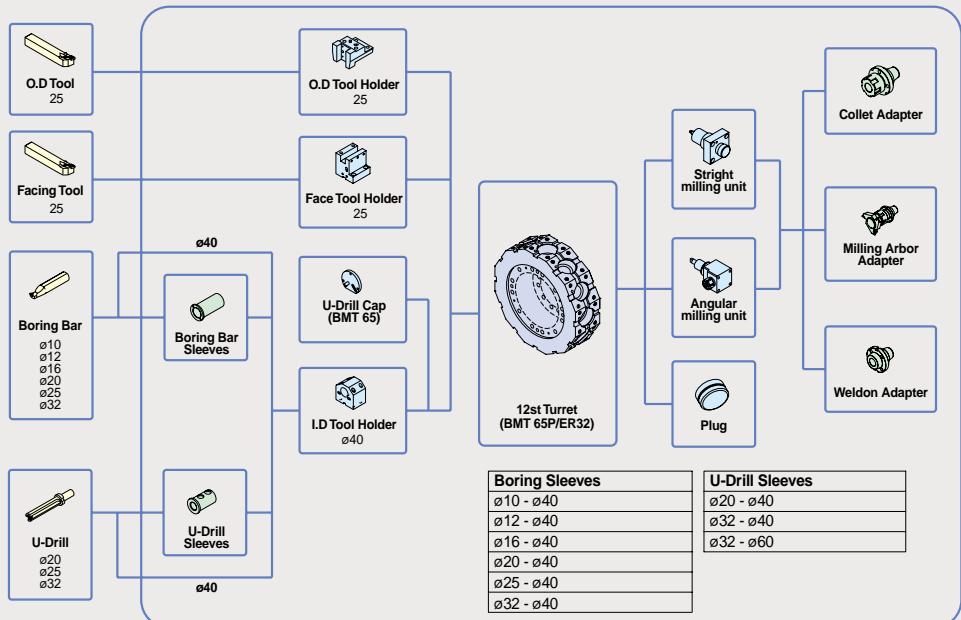
# Tooling System

unit : mm

## PUMA VT450 / VT450-2SP

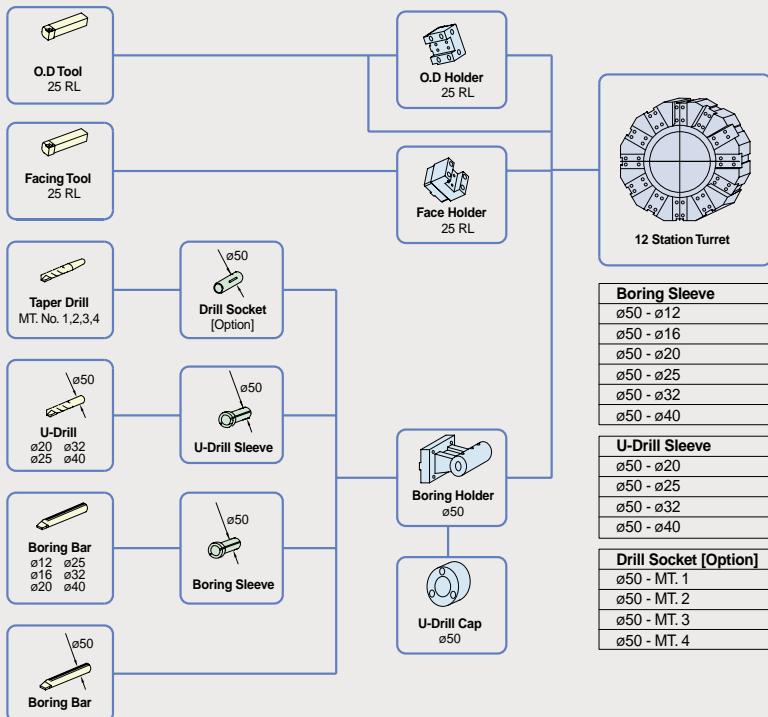


## PUMA VT450M / VT450M-2SP

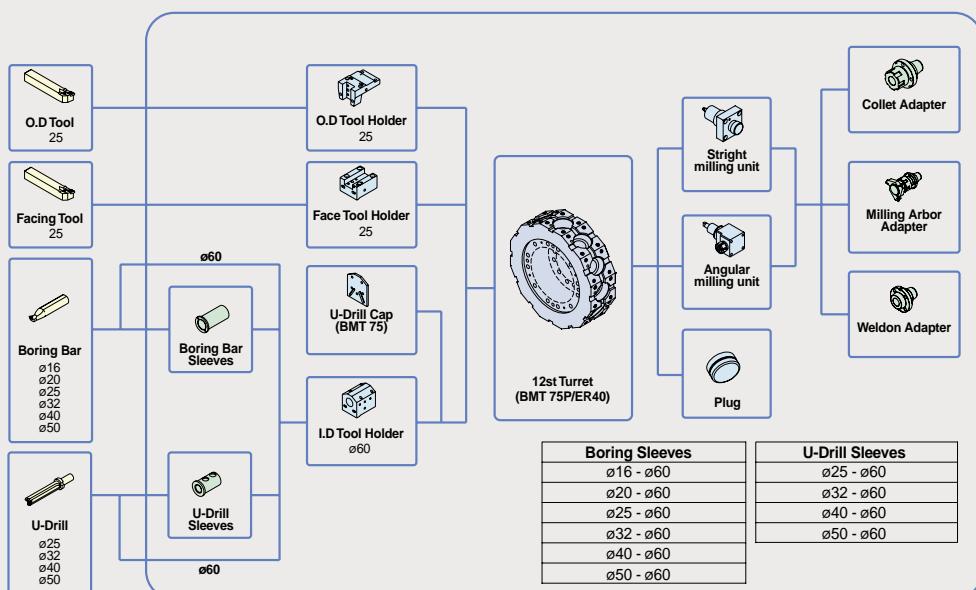


unit : mm

## PUMA VT750 / VT750-2SP



## PUMA VT750M / VT750M-2SP

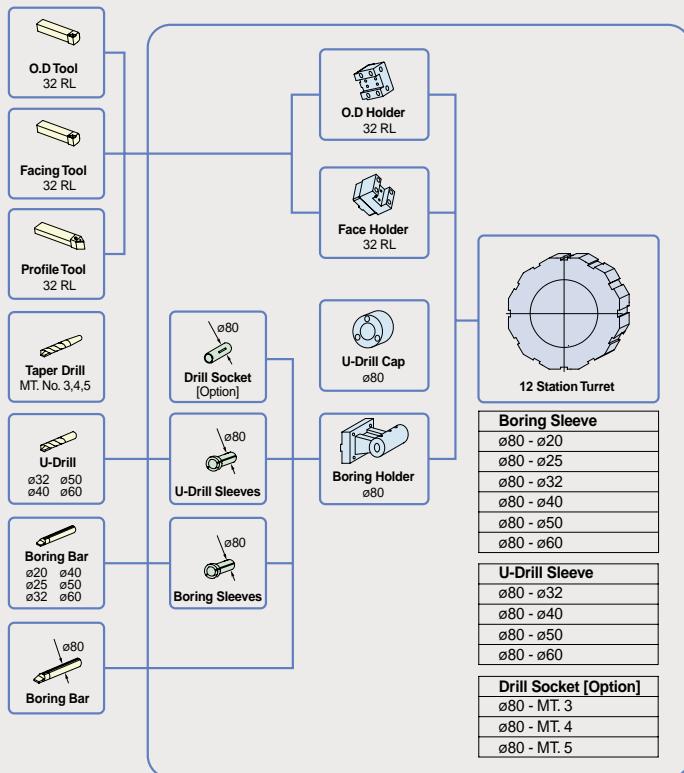


Note) Above tooling system is our recommendation. Depending on export condition, the standard tooling packed with the machine can be different.

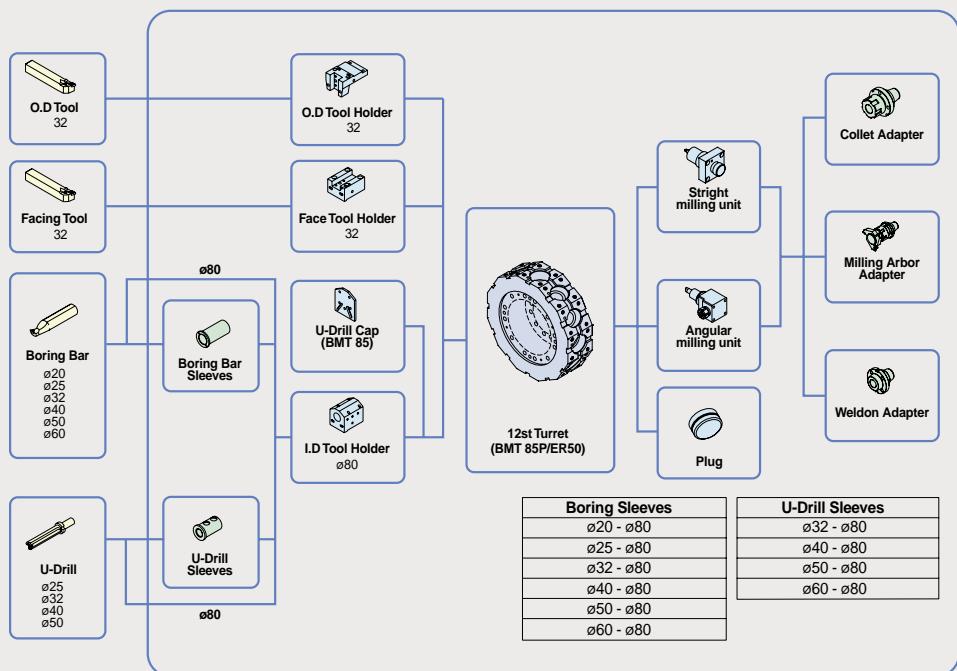
# Tooling System

unit : mm

## PUA VT900 / VT900-2SP

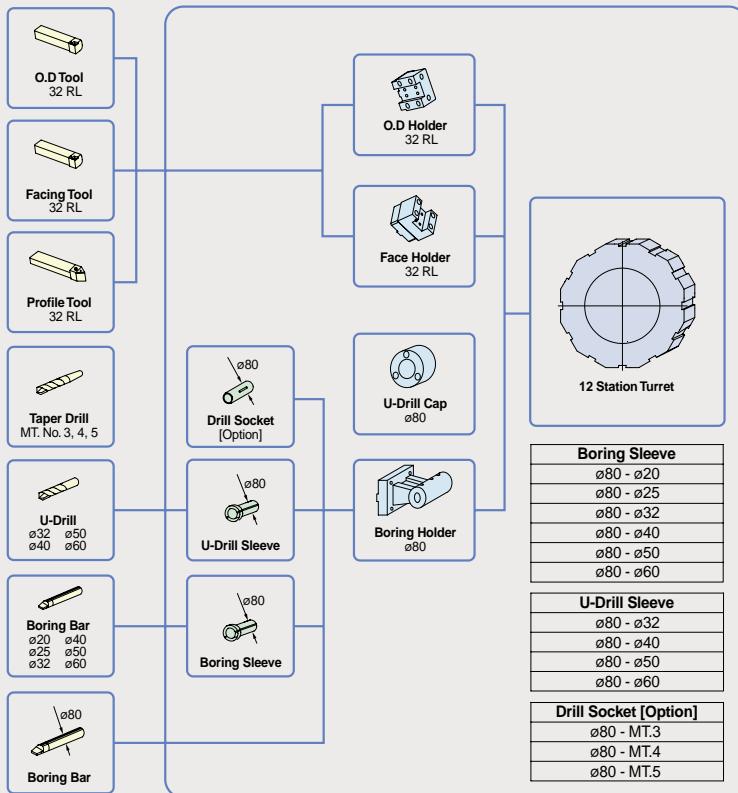


## PUMA VT900M / VT900M-2SP

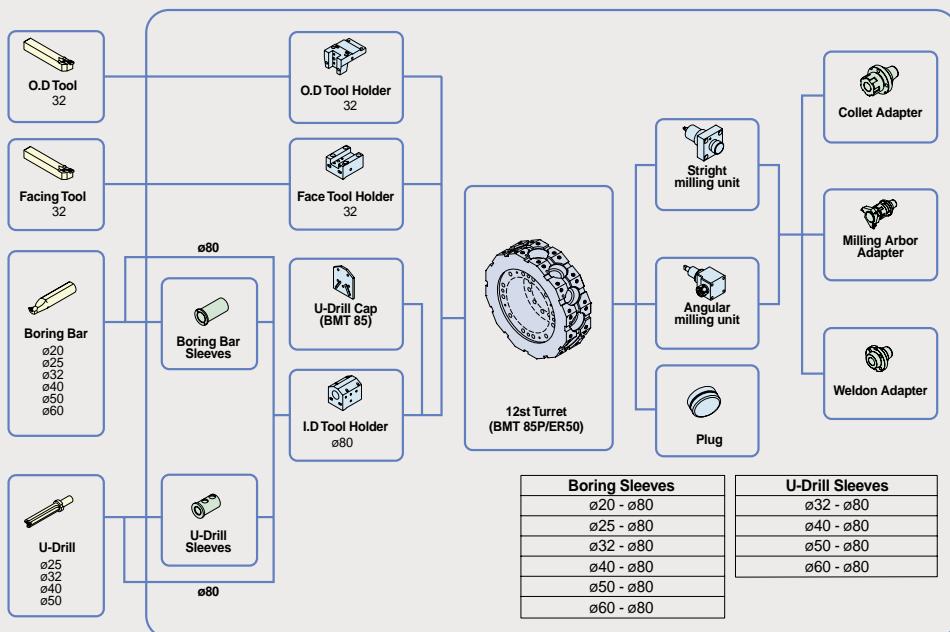


## PUMA VT1100

unit : mm



## PUMA VT1100 M

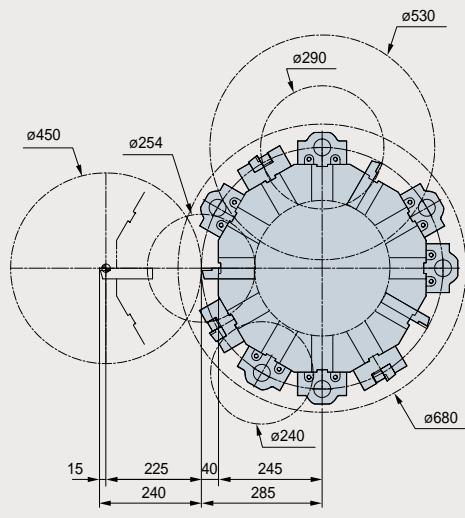


Note) Above tooling system is our recommendation. Depending on export condition, the standard tooling packed with the machine can be different.

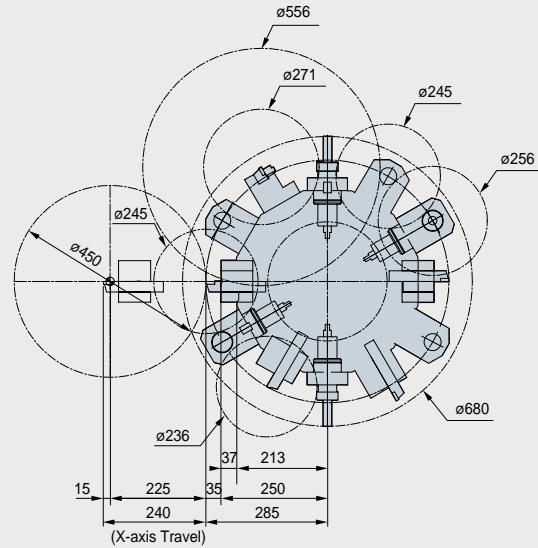
# Tool Interference Diagram

unit : mm

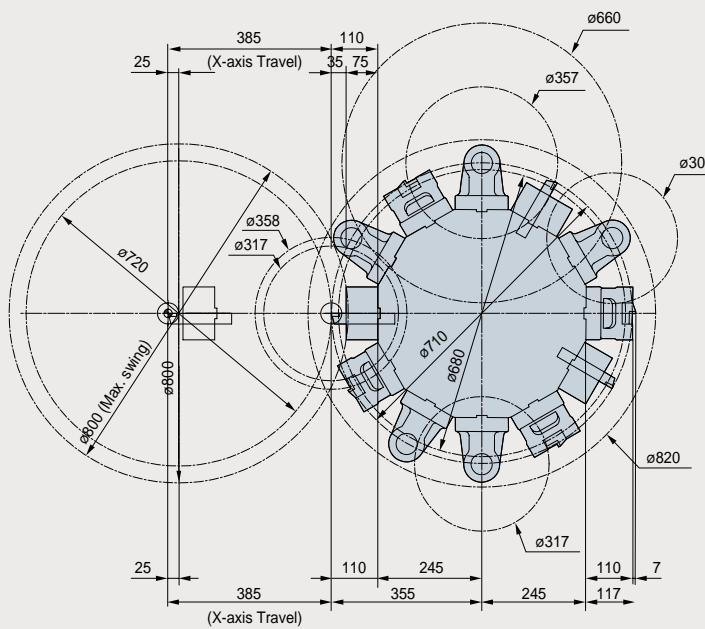
PUMA VT450 / VT450-2SP



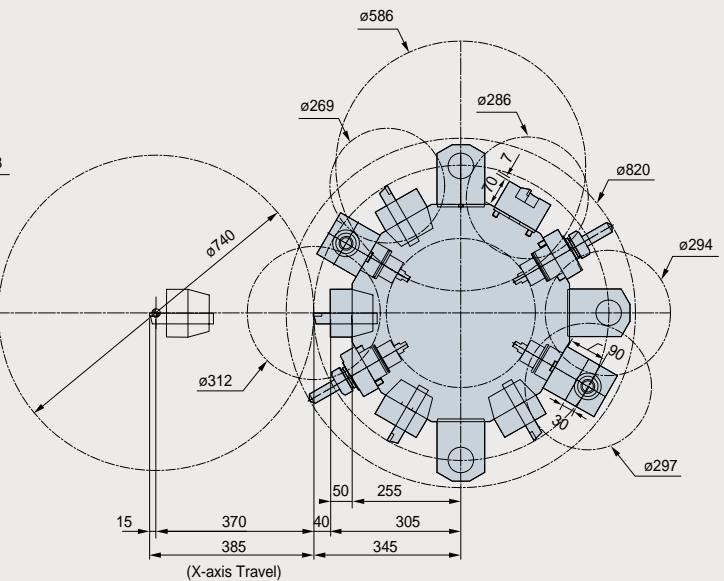
PUMA VT450M / VT450M-2SP



PUMA VT750 / VT750-2SP

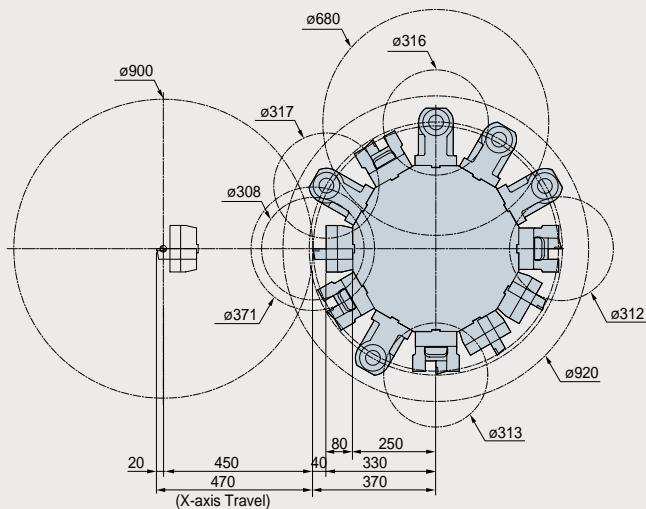


PUMA VT750M / VT750M-2SP

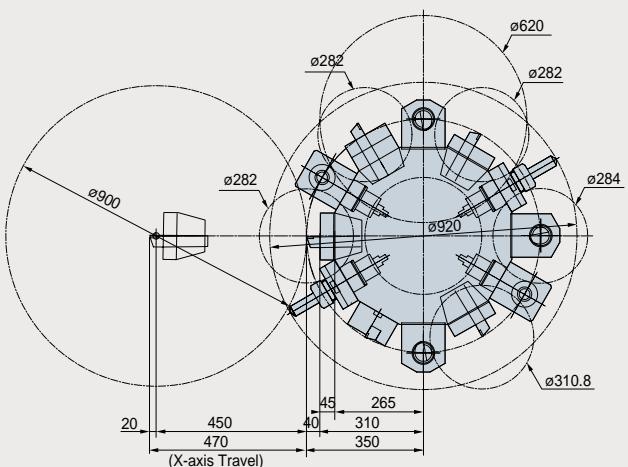


unit : mm

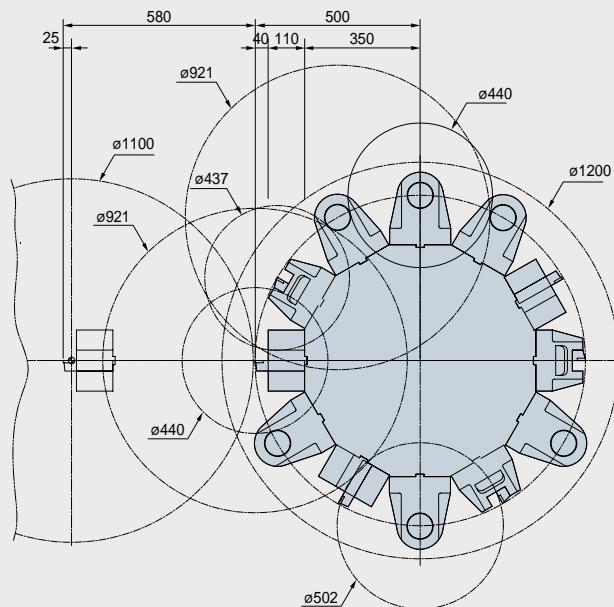
**PUMA VT900 / VT900-2SP**



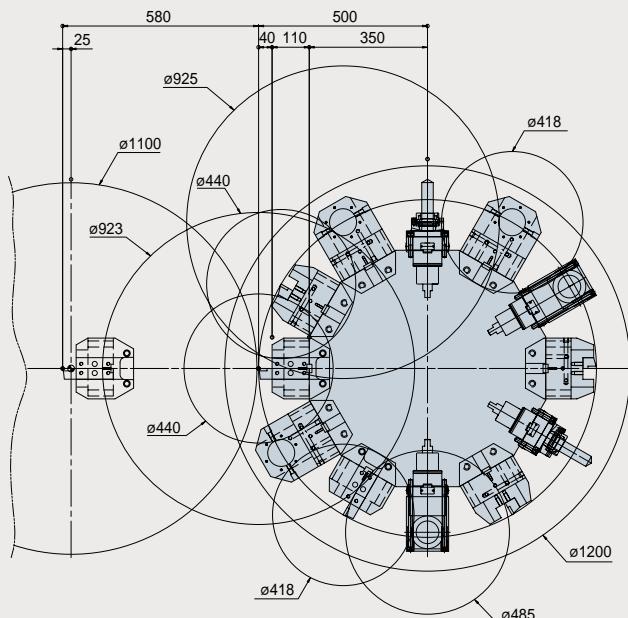
**PUMA VT900M / VT900M-2SP**



**PUMA VT1100**

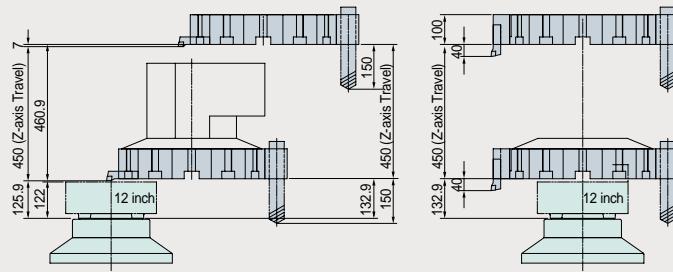


**PUMA VT1100M**

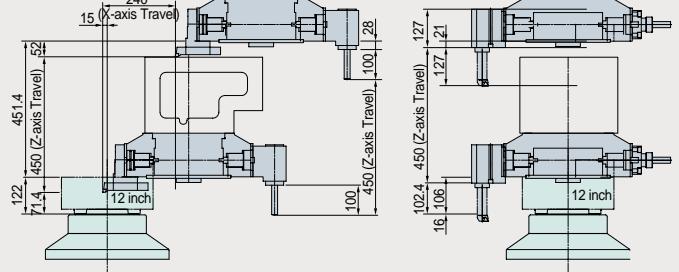


# Working Range

PUMA VT450 / VT450-2SP

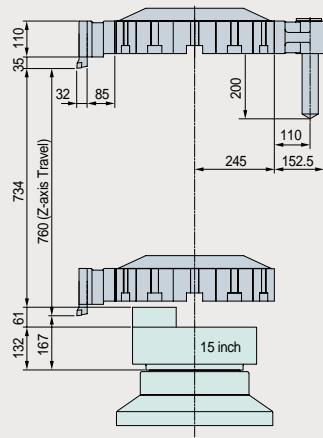
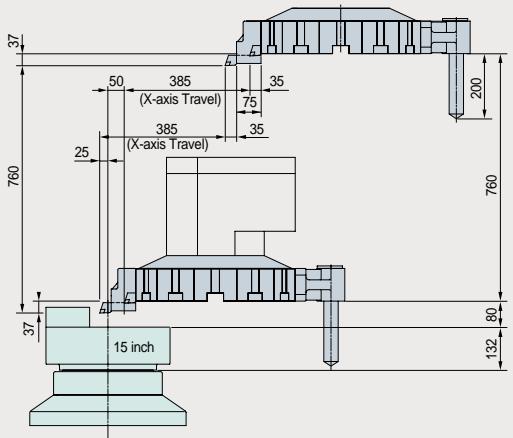


PUMA VT450M / VT450M-2SP

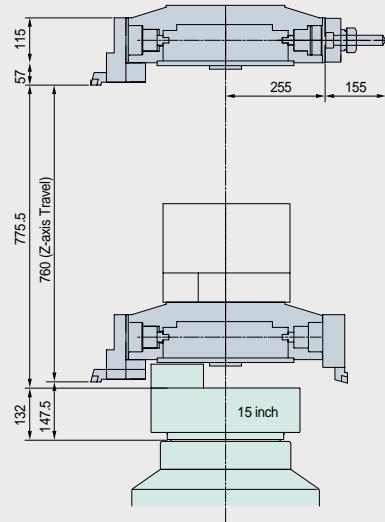
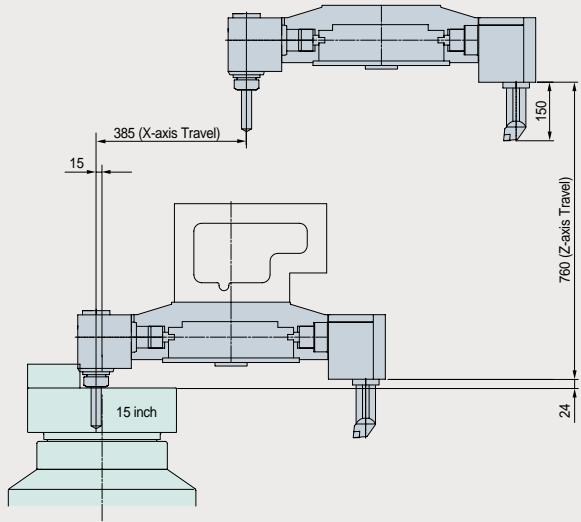


unit : mm

PUMA VT750 / VT750-2SP

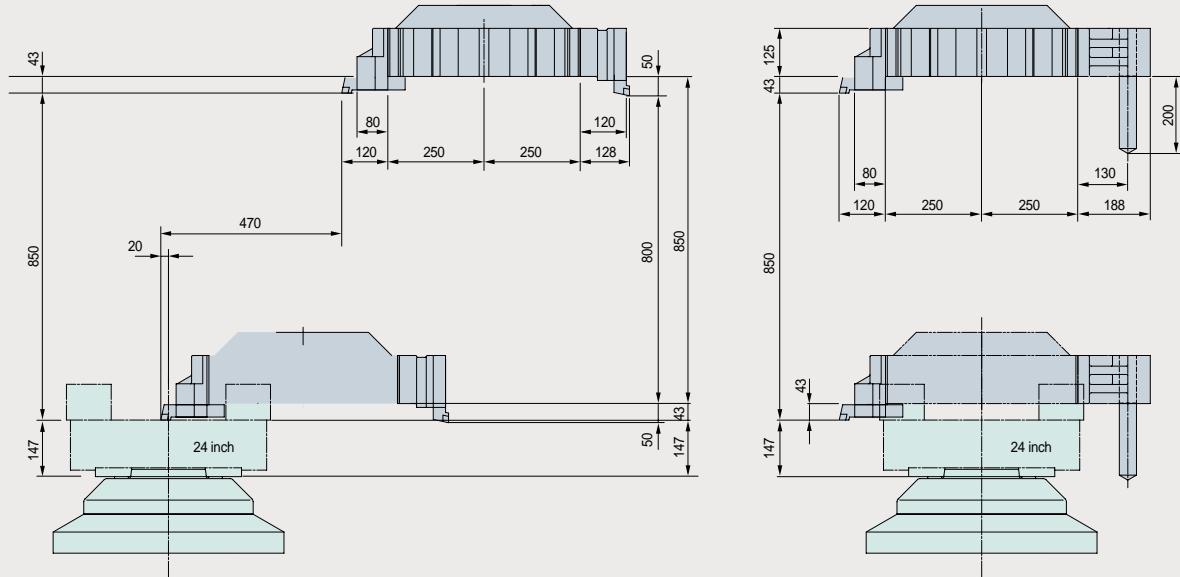


PUMA VT750M / VT750M-2SP

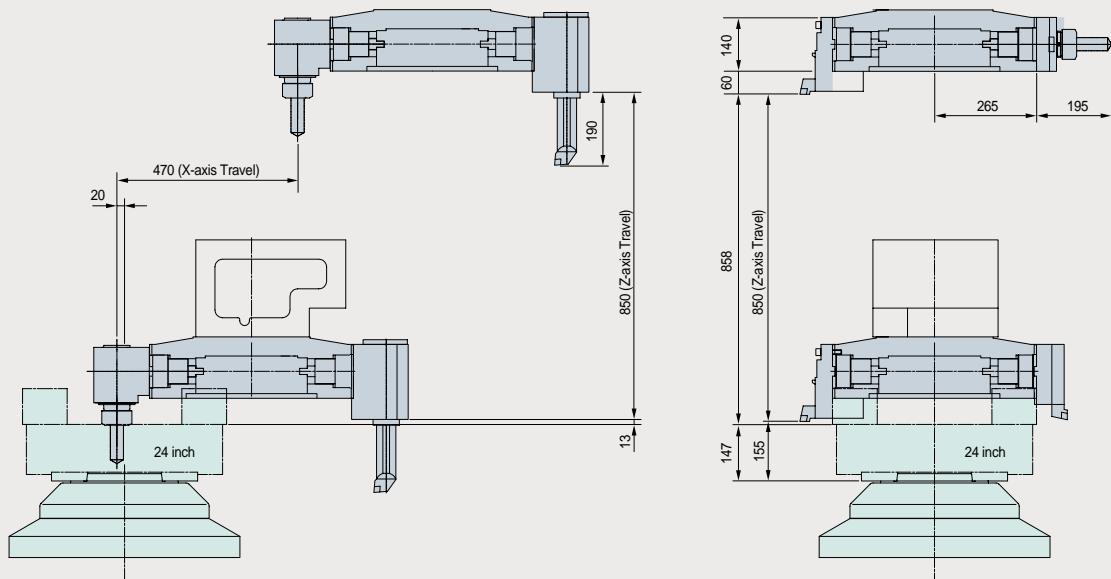


unit : mm

### PUMA VT900 / VT900-2SP



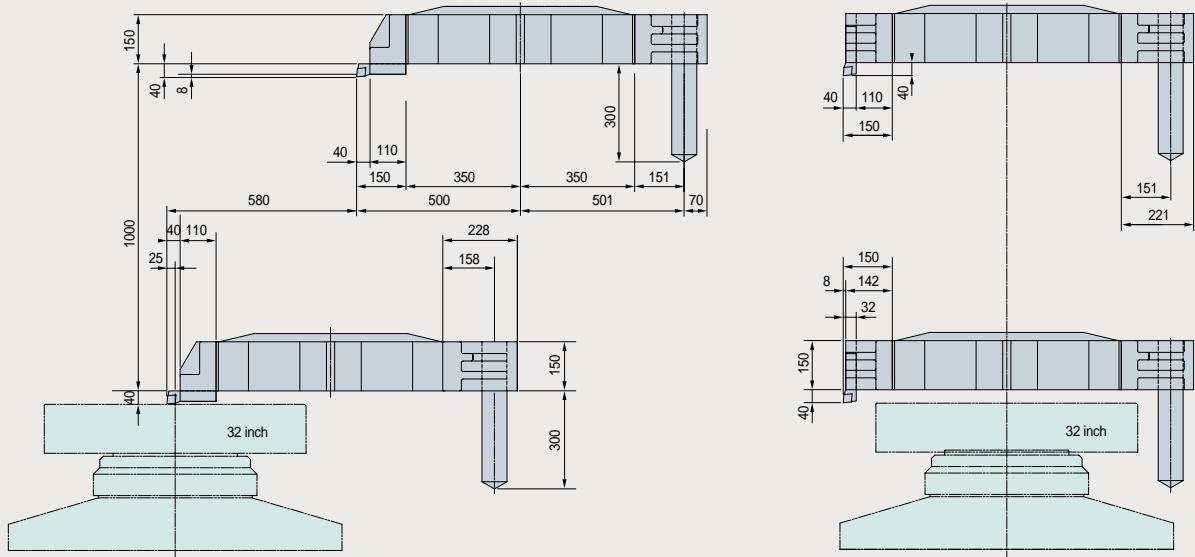
### PUMA VT900M / VT900M-2SP



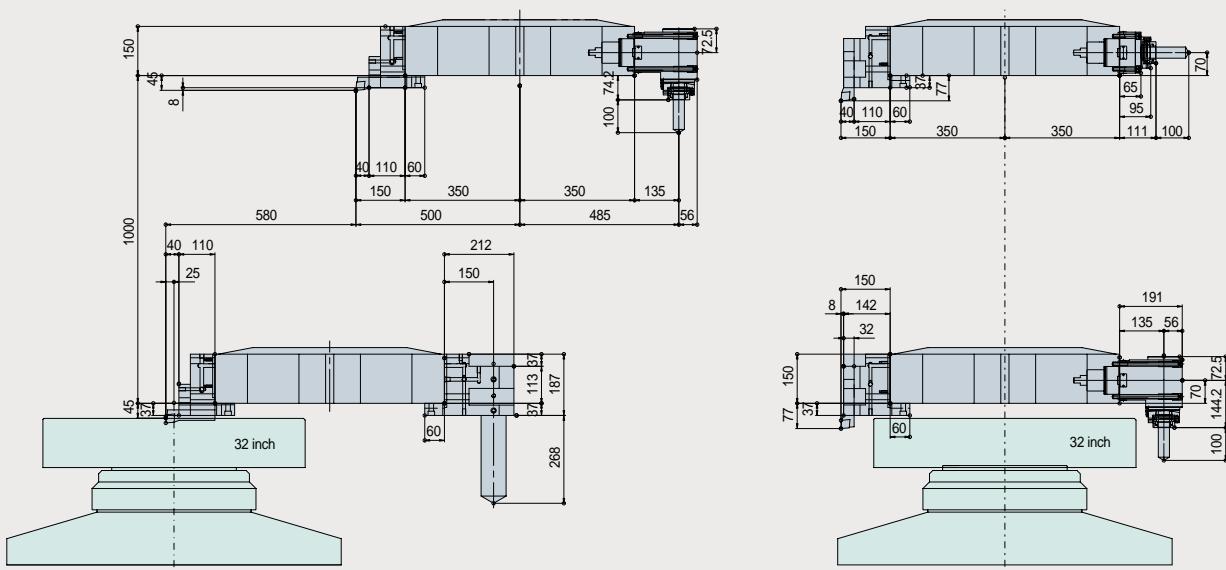
# Working Range

unit : mm

## PUMA VT1100



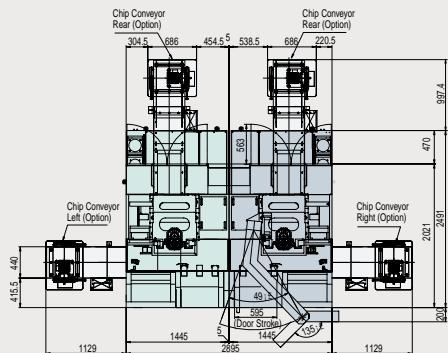
## PUMA VT1100M



# External Dimension

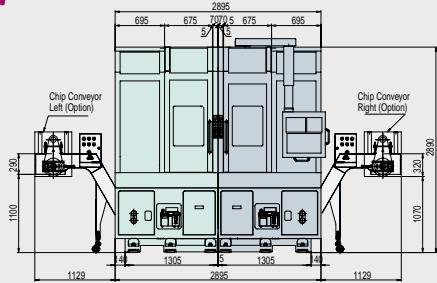
unit : mm

TOP VIEW

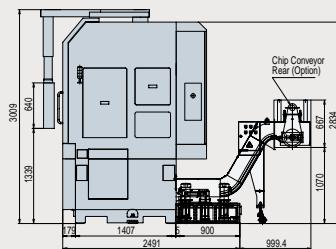


**PUMA VT450 / VT450M /  
PUMA VT450-2SP / VT450M-2SP**

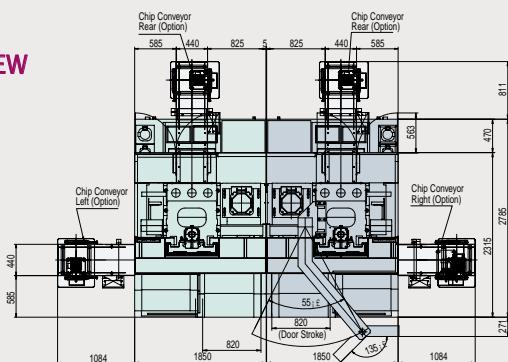
FRONT VIEW



SIDE VIEW

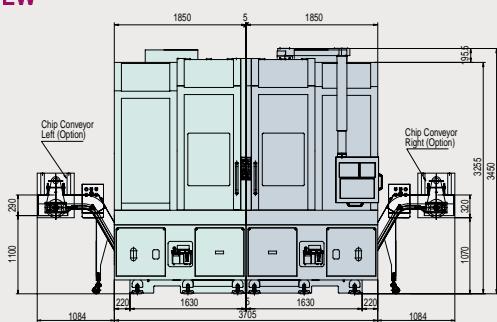


TOP VIEW

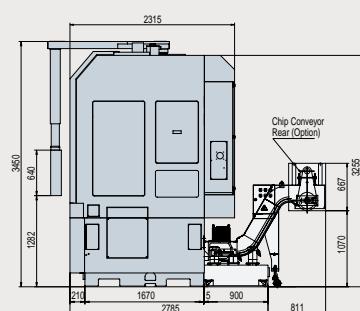


**PUMA VT750 / VT750M /  
PUMA VT750-2SP / VT750M-2SP**

FRONT VIEW



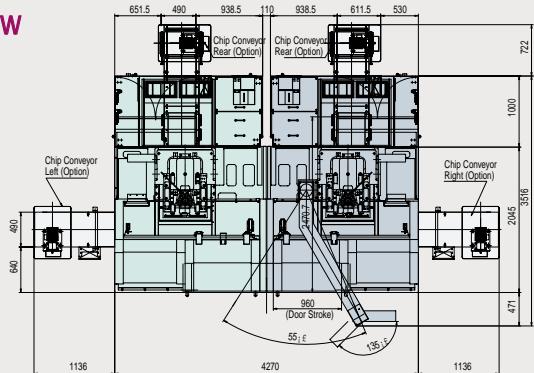
SIDE VIEW



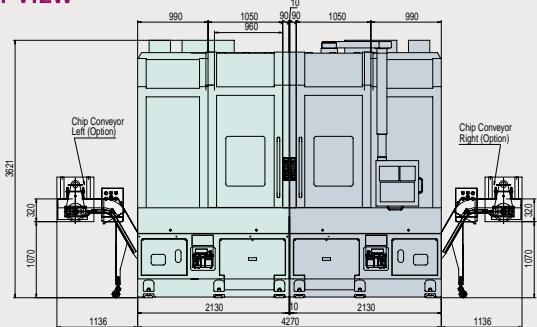
## External Dimension

unit : mm

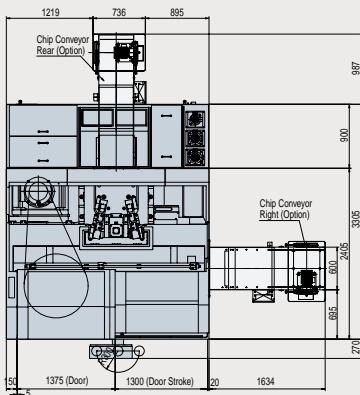
## TOP VIEW



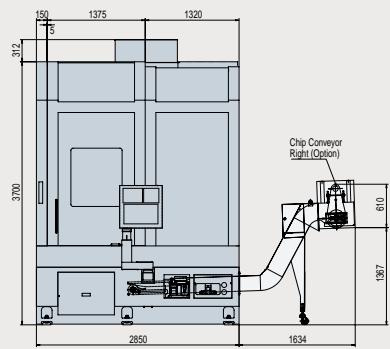
## FRONT VIEW



### TOP VIEW

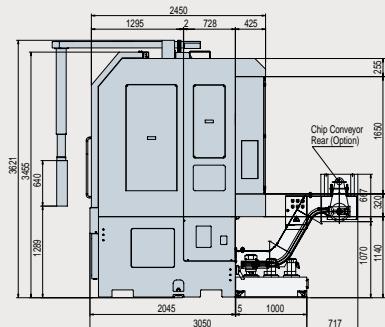


## FRONT VIEW



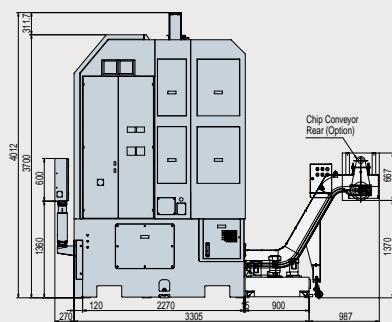
## PUMA VT900 / VT900M PUMA VT900-2SP / VT900M-2SP

### SIDE VIEW



## PUMA VT1100 / VT1100M

### SIDE VIEW



# Machine Specifications

Item	VT450	VT450-2SP	VT450M	VT450M-2SP	VT750	VT750-2SP	VT750M	VT750M-2SP
<b>Capacity</b>	Swing over bed	mm	580				800	
	Swing over saddle	mm	450				610	
	Recom. Turning diameter	mm	380				450	
	Max. turning diameter	mm	450				750	
	Max. turning length	mm	450				760	
<b>Travel</b>	X-axis travel	mm	240				385	
	Z-axis travel	mm	450				760	
<b>Main spindle</b>	Spindle speed	r/min	2500				2000	
	Spindle nose	ASA	A2#8				A2#11	
	Spindle bearing diameter	mm	120				160	
	Spindle bore diameter	mm	62				77	
	Main spindle indexing angle (C-axis)	deg	-	360 (in 0.001)		-	360 (in 0.001)	
<b>Turret</b>	No. of tool stations	st	12				12	
	OD tool size	mm	25				25	
	Boring bar diameter	mm	ø50	ø40	ø50	ø60		
	Indexing time	s	1.6	1.2	1.8	1.4		
<b>Feedrates</b>	Rotary tool spindle speed	r/min	4000				3000	
	Rapid traverse (X-axis)	m/min	20				20	
	(Z-axis)	m/min	20				20	
<b>Motor</b>	Main spindle motor	kW	22 (15min.) {26 (30min.)}				30 (30min.) {37 (30min.)}	
	Servo motor (X/Z-axis)	kW	3.0/4.0				3.0/4.0	
	Rotary tool spindle motor	kW	-	4.5	-	-	7.0	
<b>Power source</b>	Electric power supply	kVA	50	95	55	100	55	105
		kVA	55	105	60	110	65	125
<b>Machine size</b>	Machine height	mm	3009				3450	
	Machine dimension (length)	mm	1445	2895	1445	2895	1850	3705
	(width)	mm		2491			2785	
<b>Controller</b>	Machine weight	kg	6200	12400	6200	12400	9700	19400
			Fanuc 0i-TC	Fanuc 18i-TB	Fanuc 0i-TC	Fanuc 18i-TB	Fanuc 0i-TC	Fanuc 18i-TB

{ } : option

## Standard Feature

Coolant flushing for bed	Hand tool kit, including small hand tool for operationst	Soft jaws
Coolant flushing for chuck		Standard tooling kit (tool holders & boring sleeve & U-Drill sleeve)
Coolant supply equipment	Hydraulic power unit	
Full enclosure chip and coolant shield	Leveling jack screw & plates	Work light
Hydraulic chuck & actuating cylinder	Lubrication equipment	

## Optional Feature

Air blast for chuck jaw cleaning	Dual chucking pressure	Proximity switch for chuck clamp detection
Automatic door with safety device	Hardened & ground jaws	Signal tower (yellow, red, green)
Chip bucket	High pressure coolant	Special chucks
Coolant gun	Manual tool presetter (Removable type)	Straddle tool preparation (Piping & Solenoid valve, Exclude straddle tool)
Drill socket	Oil skimmer (Belt type)	

• Design and specifications are subject to change without notice.

• We do not responsible for difference between the information in the catalogue and the actual machine.

# Machine Specifications

Item	VT900	VT900-2SP	VT900M	VT900M-2SP	VT1100	VT1100M
<b>Capacity</b>	Swing over bed mm		1000			1270
	Swing over saddle mm		700			1000
	Recom. Turning diameter mm		610			800
	Max. turning diameter mm		900			1100
	Max. turning length mm		850			1000
<b>Travel</b>	X-axis travel mm		470			580
	Z-axis travel mm		850			1000
<b>Main spindle</b>	Spindle speed r/min		1800			850
	Spindle nose ASA		ISO 702-1 A2#15			ISO 702-4-No15
	Spindle bearing diameter mm		200			200
	Spindle bore diameter mm		107			100
	Main spindle indexing angle (C-axis) deg	-		360 (in 0.001)	-	360 (in 0.001)
<b>Turret</b>	No. of tool stations st		12			12
	OD tool size mm		32			32
	Boring bar diameter mm		Ø80			Ø80
	Indexing time s	2.0		1.6		2.2
<b>Feedrates</b>	Rotary tool spindle speed r/min			3000	-	3000
	Rapid traverse (X-axis) m/min		20			20
	(Z-axis) m/min		20			20
<b>Motor</b>	Main spindle motor kW		45 (30min.)			60 (10min.)
	Servo motor (X/Z-axis) kW		4.0/4.0			4.0/7.0
	Rotary tool spindle motor kW			6.0	-	11
<b>Power source</b>	Electric power supply kVA	75	145	80	155	90
<b>Machine size</b>	Machine height mm		3621			4012
	Machine dimension (length) mm	2130	4270	2130	4270	2850
	(width) mm		3050			3305
	Machine weight kg	12500	25000	12500	25000	22000
<b>Controller</b>		Fanuc 21i-TB	Fanuc 18i-TB	Fanuc 21i-TB	Fanuc 18i-TB	Fanuc 21i-TB

## Standard Feature

Coolant flushing for bed	Hand tool kit, including small hand tool for operationst	Soft jaws
Coolant flushing for chuck		Standard tooling kit (tool holders & boring sleeve & U-Drill sleeve)
Coolant supply equipment	Hydraulic power unit	
Full enclosure chip and coolant shield	Leveling jack screw & plates	Work light
Hydraulic chuck & actuating cylinder	Lubrication equipment	

## Optional Feature

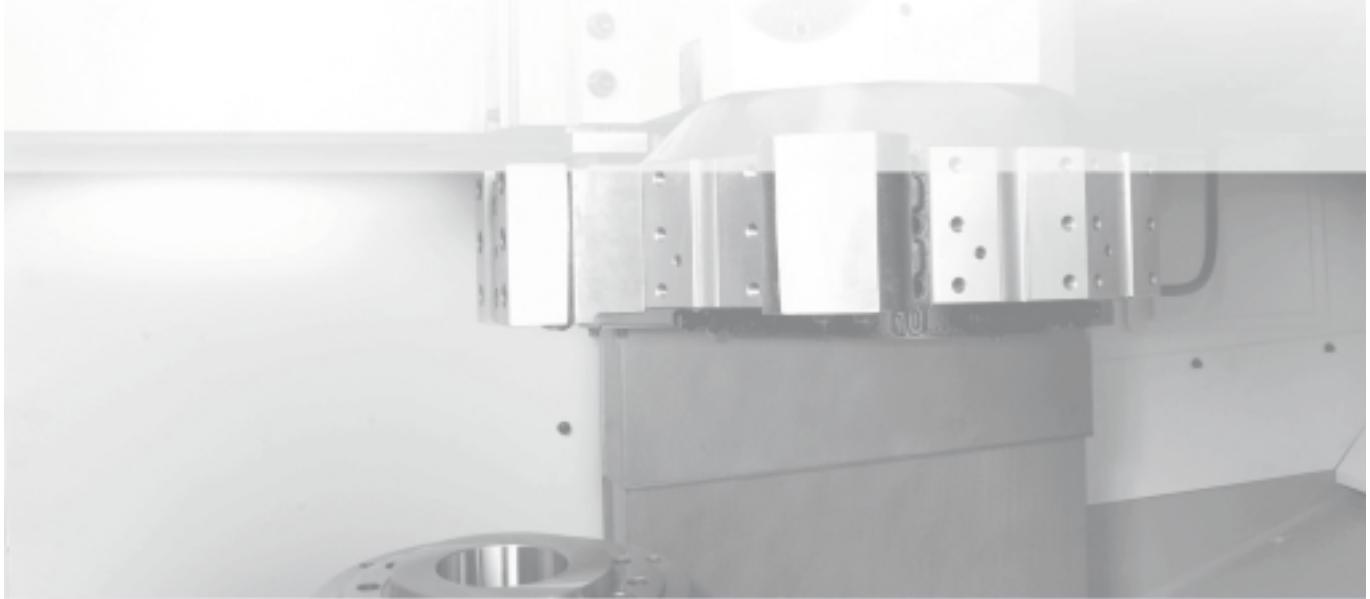
Air blast for chuck jaw cleaning	Dual chucking pressure	Proximity switch for chuck clamp detection
Automatic door with safety device	Hardened & ground jaws	Signal tower (yellow, red, green)
Chip bucket	High pressure coolant	Special chucks
Coolant gun	Manual tool presetter (Removable type)	Straddle tool preparation (Piping & Solenoid
Drill socket	Oil skimmer (Belt type)	valve, Exclude straddle tool)

- Design and specifications are subject to change without notice.
- We do not responsible for difference between the information in the catalogue and the actual machine.

# NC Specifications

	Item	Spec.	Fanuc-0iTC	Fanuc-21iTB	Fanuc-18iTB
<b>Controls</b>	Controlled Axes	std. 2 axes	X, Z, C (M)	X, Z, C (M)	X, Z, C (M) + X, Z, C (M)
	Simultaneously Controlled Axes	std. 2 axes	3 axes (M)	3 axes (M)	3 axes (M) + 3 axes (M)
	Least Input Increment	0.001mm (0.0001")			
	Stored stroke check 1	Software overtravel signal by parameters			
	Stored stroke check 2	Software overtravel signal by parameters		-	-
	Overtravel	Hardware overtravel signal			
<b>Axis functions</b>	Follow up				
	Servo off				
	Backlash Compensation				
	Cs Control		(M)	(M)	(M)
	HRV control	Servo HRV2 control			
	Feedrate Override	0 ~ 200% (10% step)			
	Override Cancel				
	Positioning	G00			
	Linear Interpolation	G01			
	Circular Interpolation	G02,G03			
	Dwell	G04			
	Skip Function	G31 (only Software)			
	1st Reference Point Return	G28			
	Reference Point Return Check	G27			
	2nd Reference Point Return	G30			
	Manual Pulse Handle Feed (1 unit)	X1, X10, X100			
	Dry run	Jog feedrate			
	Rapid Traverse Override				
	Continuous Threading				
	Polar Coordinate Interpolation		(M)	(M)	(M)
	Cylindrical Interpolation		(M)	(M)	(M)
	Variable Lead Threading			Opt.	Opt.
<b>Operation &amp; Interpolation function</b>	Spindle Speed function	S4-digit, binary output			
	Spindle Override	0% ~ 150% (10% step)			
	Spindle Serial Output				
	Constant Surface Speed Control				
	Spindle Orientation	1 Position			
	Canned Cycle for Turning	G90,G92,G94			
	Canned Cycle for Drilling	G80 ~ G89			
	Multiple Repetitive Canned Cycle	G70 ~ G76		-	
	Inch/Metric Conversion	G20 / G21			
	Back-Ground Editing				
	Optional Block Skip				
	M function	M3-digits			
	Sub-Program Call	4 folds nested			
	Program end & Rewind	M02, M30			
	Program stop	M00			
	Optional stop	M01			
	Program Number Input	O4-digits			
	Sequence Number Input	N5-digits			
	Manual Absolute On/Off				
	Custom Macro B				
	Chamfering on/off				
	Programmable Data Input	G10			
	Direct Drawing Dimensions Programming				
	Diameter/Radius Programming(X-axis)	X-axis			
	Automatic Corner Override		-	-	Opt.
	Coordinate System Rotation		-	-	Opt.
	Optional Block Skip 9 Sets	Hardward Added	-	Opt.	Opt.
	Multiple Repetitive Canned Cycle II				
<b>Programming functions</b>	T-code function	T2+2 digits			
	Tool Life Management				
	Tool Geometry/Wear Offset		64	64	±6 digits : 32 pairs
	Tool Offset Pairs				
	Tool Nose Radius Compensation	G40-G42			
	Program Input Code	EIA, ISO			
	Play Back			Opt.	Opt.
<b>Editing functions</b>	Extended Part Program Editiong				
	Program protect				
	Part Program Storage Length	640M (256KByte)	640M	640M (max.1280M)	640M (max.5120M)
	Number of Registered Programs		400	200	125 (Max.1000)
	Run time and Parts number display				
	Help function				
<b>Setting &amp; display</b>	Alarm history display	CNC alarm and Machine alarm			
	Lock function				
	Self-Diagnosis function				
	Multi Language Display				
<b>Data input &amp; output</b>	I/O Interface	RS232C			
	Memory card Input/Output				
	External Program Input				
	External work number search	15 digits			
<b>Other functions</b>	Display Unit		10.4" color LCD	10.4" color LCD	10.4" color LCD
	Ethernet Function	Embedded Ethernet	Opt.		
	Rigid tapping				

# PUMA VT450 / VT750 / VT900 / VT1100



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